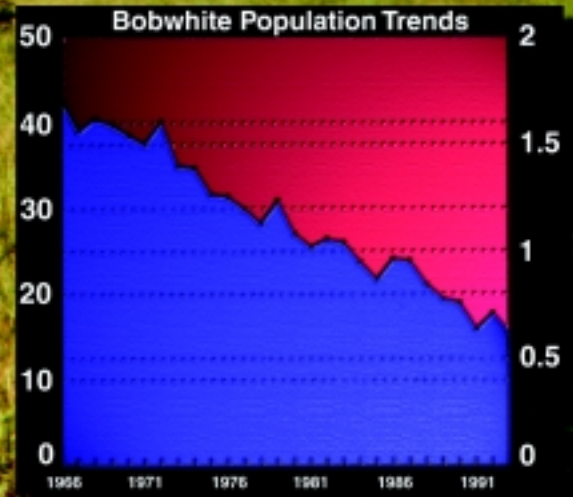


Handling The

Fescue Problem



Data from annual bird breeding survey

THE GRAPH ABOVE SHOWS AN ALL TOO FAMILIAR scene of bobwhite quail population trends throughout its range. The bobwhite is not alone. Many of our grassland associated bird species are following similar long-term declines.

The following information describes what is considered to be the single biggest problem facing bobwhite quail and other grassland birds throughout a major portion of their range. This is an area encompassing from southern Maryland to northern South Carolina, west across the northern portions of Georgia, Alabama, Mississippi, Louisiana and Arkansas, then north through Missouri and back east across Illinois, Indiana, Ohio and West Virginia. Kentucky and Tennessee lie in the heart of the problem area. The problem is the nearly complete conversion of hay fields, pasture lands and other grassland areas to KY 31 tall fescue cover. This article provides information to help landowners interested in wildlife address this problem.

Since European settlement, and especially during the last 50 years, our native grasslands have been changed from diverse grassland ecosystems to stands of introduced grasses. Our native grasslands consisted of warm season grass species such as big bluestem, Indiangrass, little bluestem and switchgrass, along with numerous native wild flowers. These native stands have been gradually converted to cool season species such as timothy, orchard grass, bluegrass, redbud, and more recently, tall fescue. Recent evidence suggests the huge acreage planted to tall fescue during the last five decades may well explain much of the decline in grassland-associated wildlife species.

Tall fescue was originally introduced from Europe to the United States during the late 1800s. The University of Kentucky began developing tall fescue varieties in the early 1900s and released the KY 31 variety for distribution in 1943.

Tall fescue soon became very popular because of its ease of establishment and ability to withstand abusive management. By 1970 KY 31 tall fescue had become widely established through-

out the mid-latitudes of the South and Midwest regions of the country. KY 31 tall fescue has since become the predominant grass variety used for pastures, hay fields, turf and erosion control in the southeastern, midwestern and northwestern U.S. There are currently an estimated 120 to 140 million acres of tall fescue across the nation. These vast acres of fescue provide poor quality summer grazing and a great loss of grassland wildlife habitat, particularly for species such as bobwhite quail and cottontail rabbits. Many landowners now recognize this problem and are interested in eliminating fescue on some or all of their acreage.

Wildlife biologists have long agreed that fescue is a poor wildlife cover. KY 31 tall fescue is an extremely competitive plant which tends to totally dominate fields where it has been established. Tall fescue is a sod-forming turf grass with a thick matted growth form which is extremely limiting to the movement of wildlife such as quail or rabbits. The thick growth form of tall fescue often eliminates other plants from growing with it. This creates nearly monocultural fields of fescue without the necessary diversity in plant species needed to provide for the life requirements for a variety of wildlife species. In the winter, fescue is flattened by the weight of snow or ice, and therefore, provides very poor winter cover. While these negative attributes of tall fescue make it a poor choice for wildlife cover, an even more sinister characteristic is hidden within the fescue plant.

Oddly, the culprit is not fescue itself, but an endophytic fungus that lives within the fescue. Nearly all stands of KY 31 are infected with this "endophytic fungus." The fungus lives in a mutually beneficial, or symbiotic, relationship with the fescue. The endophyte produces chemicals in the plant which cause the fescue to have toxic qualities. These alkaloids created by the fescue endophyte are found throughout the plant, however, are most concentrated in the seeds, leaf sheaths and crown. These chemicals act as a feeding deterrent, causing animals not to eat the fescue, except as a last resort. By producing this feeding deterrent, the

by Jeff Sole and Pat Keyser

ROUNDUP SPECIFICATIONS

Roundup is one of the most effective herbicides, especially when applied to vigorously growing fescue. Fescue should be sprayed when leaves are at least eight to 12 inches tall.

Timing is important in fall herbicide application. If the desirable warm season grasses or forbs exist in the stand, herbicides should be applied after frost has caused desirable vegetation to become dormant. If few desirable plants exist in the stand, treatment should occur during the second week of October or during vigorous growth when fescue leaves are eight to 12 inches tall.

ROUNDUP HERBICIDE FOR FALL APPLICATION

- 1 quart/acre Roundup Ultra
- 6 to 7 ounces of nonionic surfactant
- ammonium sulfate at 17 pounds /100 gallons of spray
- 10 gallons/acre water
- apply with flat fan nozzles at 30 to 40 p.s.i.
- apply in fall when fescue is eight to 12 inches tall and actively growing

ROUNDUP HERBICIDE FOR SPRING APPLICATION

- 2 quarts/acre Roundup Ultra
- 6 to 7 ounces of nonionic surfactant
- ammonium sulfate at 17 pounds /100 gallons of spray
- 10 gallons/acre water
- apply with flat fan nozzles at 30 to 40 p.s.i.
- apply in spring when most plants have reached the boot to early seedhead stage
- wait 7 days before preparing a seedbed for planting

For more information on ROUNDUP Ultra, call:

(800) 332-3111

Controlled burning may be one of steps used in the fescue conversion



fungus has insured a place for itself to live and helps the fescue compete with other grasses and forbs in an area. This characteristic is one reason KY 31 is so easy to establish. Simply put, nothing will eat endophyte-infected plants unless it's the only food available.

There have been numerous studies in recent years documenting the deleterious effects of endophyte-infected tall fescue diets on a wide variety of animal species. Most research has been on livestock and laboratory animals. This research has shown that an endophyte-infected fescue diet causes "fescue toxicosis or summer syndrome" in various livestock species. Effects of summer syndrome include excessive body temperatures, elevated respiratory rates, loss of appetites, body weight losses, lowered milk production rates, lowered fertility rates, and absorption of fetuses. It has been estimated that summer syndrome cost the livestock industry over \$500 million annually in lost production.

In lab animals, such as mice, rats and rabbits, endophyte-infected diets have caused lowered sperm counts, lowered egg production, weight losses, abortion and absorption of fetuses, poor lactation, smaller than normal litter sizes and stunted and slow development of the young that were born. All of these effects result in lowered reproduction rates for the animals.

Wildlife biologists are concerned about the direct and indirect effects of fescue on wildlife and native plant communities. As new research results are reported, many farmers are joining wildlife biologists in seriously questioning the widespread use of fescue.



Killing Fescue

Now for the important information. How do we get rid of tall fescue?

There are several approaches to the task of eliminating fescue. The best results come from the most intensive fescue disturbance. Two primary ways to get rid of fescue are bottom-plowing, followed by disking or rototilling to prepare a seed bed or use of herbicides. Using a combination of the treatments usually provides the best success.

The preferred treatment, and the one which provides the best results, is achieved by first removing the duff with fire, followed with an herbicide application, then using conventional tillage methods, such as plowing and disking, or rototilling, to prepare a seed bed. Excellent results are also achieved by burning, spraying and no-till planting a preferred grass/forb mix.

Where the threat of soil erosion is significant, conventional tillage should be avoided or done on the contour with unplowed buffers left until the first strips have become adequately vegetated.

This will usually be at least six months, and more typically one year. Either fall or spring plowing followed by discing can be effective. Plowing has an advantage over spraying in that it requires little out-of-pocket expenses. Plowing can also be valuable in producing desirable native vegetation that results from soil disturbance.

Spraying requires less time from the landowner and minimizes problems with soil erosion. Spraying can also be contracted out. Although many herbicides exist that can kill fescue, the most widely available are those that use the active ingredient glyphosphate.

With all herbicides, timing of application is critical. Fescue should be sprayed when it is actively growing (April to early-May or mid-September to mid-October) and is about eight to 12" tall. Dry spells that slow fescue growth should be avoided. If the field being sprayed has been regularly used for forage, spraying can be best completed when the grass is at least eight inches in height and actively growing. Simply removing cattle or cutting hay about two weeks prior to spraying will normally accomplish this. On fields that have been fallow it will usually be necessary to mow two to three weeks prior to spraying. This will "cleanup" the field and help insure that there is good herbicide contact with the actively growing grass. Burning can be used instead of mowing with better results, but requires three to six weeks before enough regrowth (approx. eight inches) has occurred for spraying.

Low-volume spraying enables you to use less chemical to achieve the same results. With high-pressure sprayers and flat fan nozzles, as little as 10 gallons of solution per acre (one quart/acre of glyphosphate [Roundup] or 12 oz. of Plateau* in 10 gallons of water) can be used. However, many sprayers cannot consistently put out less than 25 gallons/acre of solution and will require using higher rates of chemical per acre. As a general rule, a two quart rate of glyphosphate (Roundup) is a good idea and allows some room for error while still insuring a good kill.

Whether you choose to spray or plow, perhaps the most critical stage of control comes after this first step. Killing an existing stand of fescue is easy. Keeping it from reestablishing is hard. Most farms have enough seed sources nearby, that within a couple of years, the fescue will be back and on its way to once again dominating the site. Several steps can help keep this from happening.

First, consider using a "smother crop" after initial control. A smother crop is usually a small grain such as wheat, oats or millet which is planted densely enough to shade-out and compete with fescue seedlings. Plantings which allow use of selective herbicides, such as soybeans or native warm season grasses, can also be useful.

For quail, it is not necessary to plant anything after the fescue is first killed. Many high quality plant species such as ragweed, foxtail or annual lespedezas will volunteer into the daylighted area the first year after the fescue is killed and will provide excellent quail brood-rearing habitat. Subsequent years usually have more grasses volunteer and produce good nesting and brood-rearing habitats. However, following plowing, especially on hillier land, planting a cover crop can be very important.

**Plateau is also available in an ECO-PAK. One ECO-PAK contains 2-1.43 ounce dry WSP (water soluble packets). Each WSP equals 4 ounces of liquid Plateau.*

PLATEAU Herbicide and Tall Fescue Control

Best control is obtained when PLATEAU + Roundup are used together as a tank mix. Burning prior to application to remove debris will allow for greater foliar interception of the spray. Allow for adequate regrowth (10"+) before spraying. Burning in the spring of the year following the herbicide application will aid in control of tall fescue. Recommendations for Fescue Conversion Program follow:

FALL APPLICATIONS

- Apply PLATEAU at 12 oz. + 2 pts. of methylated seed oil (MSO) per acre or
- 8-12 oz. PLATEAU + 24-32 oz. Roundup + 2 pts. MSO per acre

SPRING APPLICATIONS

- Apply PLATEAU at 12 oz. + 2 pts. of MSO or
- PLATEAU 6-12 oz. + 24-64 oz. Round up + 2pts. MSO per acre

Apply after green-up. Applications made at time of seedhead elongation may result in reduced efficacy. SPLIT APPLICATION: Fall application of PLATEAU at 8 oz. plus Roundup plus 2 pts. MSO per acre followed by 4 oz. of PLATEAU applied in the spring at planting will provide excellent control of tall fescue and annual weeds. Do not exceed 12 oz. of PLATEAU per acre per year. PLATEAU provides control of emerged weeds and also preemergent control of weeds that will germinate and compete with native warm-season grass seedlings (NWSG). PLATEAU may be applied prior to planting or after NWSG seedlings emerge. For tough perennial weeds like tall fescue, Canada thistle, etc., the tank-mix of PLATEAU + Roundup will provide the best results. Always refer to the manufacturer's label for specific timing, rates and weeds controlled.

For more information on PLATEAU herbicide call:

(800) 545-9525



Fescue greening up after a controlled burn

Whether plantings are made or not, spot spraying each spring (or fall) for the next several years is critical. Re-plowing or re-spraying the entire field after two growing seasons should be considered if fescue is widely scattered in the field and has reached about 30 percent coverage.

It is impractical and unnecessary to keep all fescue out of a field. The real goal is to keep it suppressed. Some attention through the years can be the key to keeping fescue to a minimum, and not having to go back to extensive spraying or plowing.

Two practices that should be avoided in the first two or three years after initial control, are fall disking and late-winter burning. These practices can increase the coverage of fescue in a fallow field.

Cost-share assistance may be available for fescue control alone or for the conversion of fescue to native warm season grasses/forbs through the Conservation Reserve Program (CRP), the Environmental Quality Incentives Program (EQIP) or the Wildlife Habitat Incentives Program (WHIP), administered by the U.S. Department of Ag-

riculture, Natural Resources Conservation Service (NRCS) and Farm Services Agency (FSA). You should also check with the local office of your state's wildlife conservation agency for technical assistance and other cost-share or incentive payment opportunities.

This article was prepared by the Southeast Quail Study Group (SEQSG), Habitat Implementation Committee. The SEQSG was formed by the Southeastern Association of Fish and Wildlife Agencies in 1995 and is composed of wildlife biologists from state and federal agencies, universities, private conservation groups and private/corporate landowners. The SEQSG is charged with addressing the long-term decline in bobwhite quail populations through management, research and education. Jeff Sole and Pat Keyser are wildlife biologists with the Kentucky Department of Fish and Wildlife Resources and Virginia Department of Game and Inland Fisheries, respectively.

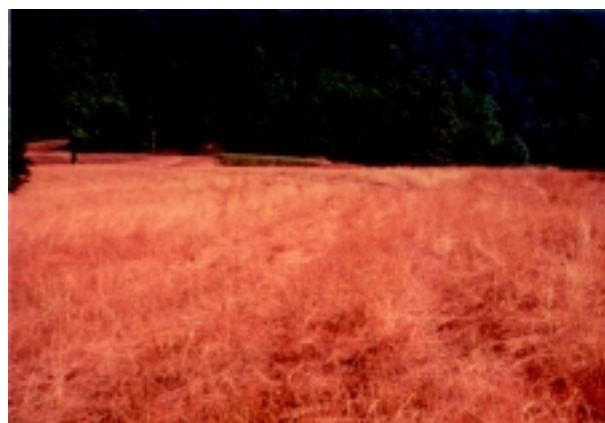


STEP 1 - Mow, graze or preferably, burn the fescue in late winter for a spring kill or late-summer for a fall kill;

STEP 2 - Allow the fescue to begin a rapid growth, "green-up," to a height of at least six inches. Spray when the plant is actively growing; rapid green-up periods are best.

STEP 3 - Spray the field with one to two quarts per acre of glyphosphate (Roundup) or 12 oz. of Plateau. In spring kills wait two weeks after the initial spraying, if there is still green fescue, re-spray or spot spray the problem areas. For fall kills, spray during fall green-up, then wait till the next spring and spot spray if needed.

STEP 4 - After a good kill is achieved (as pictured top right), and if the terrain allows, plow and disc the area (as pictured on right) to prepare a seed bed and plant a wildlife friendly grass/legume mixture.



If the ground is erodible or unsuitable for conventional tillage, a no-till seeder can be used to drill directly into the dead fescue sod. Best results are obtained when the dead fescue duff is burned off.

NOTE: The above recommendations are for landowners wanting to hay or graze the converted area for livestock production. Where production of hay or pasture is not a priority, fescue can be treated by herbicide and/or plowing followed by disking, and simply left alone to produce excellent food and cover for wildlife.

